

ABSTRACT OF THE DISCLOSURE

A method and apparatus for discovering paths to other network devices includes a protocol and network management application that can be executed on network devices. The Ethernet protocol is used to detect paths to other network devices, knowing only the Ethernet address of the destination. A discovery protocol is extended to add hop probe and hop probe reply Type-Length-Value ("TLV") fields in a variable-length list. Hop probe fields contain a hop count, a destination Ethernet address, and a source Ethernet address. When a hop probe is received by a network device, the receiving network device decrements the hop count field by one and looks up the destination address in its address table to determine which port would be used to forward to that address. Packets received with a hop count of one (decremented to zero) are not forwarded. If the received hop count is one, a hop probe reply is sent to the Ethernet source address found in the hop probe TLV field. Hop probe reply TLV's contains a destination Ethernet address field that corresponds to the source of the original hop probe and a source Ethernet address field that corresponds to the station that has received a hop probe with a hop count of one. The discovery protocol on each intermediate station is responsible for forwarding the hop probe and hop probe reply messages until the destination address specified in the hop probe reply TLV is reached.

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